CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1.   A method for improving decoding throughput of compressed image data, said method comprising steps of
    partially decompressing said compressed image data to form partially decompressed data in an intermediate code, said compressed image data being incompatible with a hardware image decoder,
    recompressing said intermediate code in accordance with a compressed format compatible with said hardware image decoder forming recompressed image data, said recompressing step being performed in a lossy manner, and
    decoding said recompressed image data with a said hardware image decoder, whereby software processing for decoding of said compressed image data is reduced by hardware decoding of said recompressed image data.

2.   A method as recited in claim 1, wherein said partially decompressed data is a packed intermediate code.

3. A method as recited in claim 2 wherein said packed code contains JPEG RS symbols and extra bits.

1   4.   A method as recited in claim 3 wherein said
2   packed format is of the form:
3 |N,FZKlast|DC|[ZRL,0xn0]|RS,E1|[E2,0x00]|...|EOB,0x--|[0x----] |.

1   5.   The method as recited in claim 1, comprising the
2   further steps of
3   decoding said compressed image data by software
4   processing, and
5   substituting results of said decoding said
6   compressed image data by software processing step
7   for results of said hardware decoding.

1   6. The method as recited in claim 1 wherein said
2   recompressed data is MPEG compressed data.

1   7.   The method as recited in claim 1, wherein said
2   step of partially decoding includes entropy
3   decoding.

1   8.   The method as recited in claim 1, including the
2   further step of disabling oddification of said
3   hardware image decoder.

1   9.   The method as recited in claim 8, wherein said
2   hardware image decoder is an MPEG video decoder.

1   10.   The method as recited in claim 5, including the
2   further step of disabling oddification of said
3   hardware image decoder.

1   11.   The method as recited in claim 10, wherein said
2   hardware image decoder is an MPEG video decoder.

1 12. A method for viewing images comprising steps of
2   providing image data representing a plurality
3 of images in a first data format,
4   transcoding data in said first data format to a
5 second data format accommodated by a hardware
6 decoder,
7   decoding said data in said second format in
8 parallel with transcoding data in said first format,
9 and
10   substituting image data decoded from said data
11 in said first format for image data decoded from
12 said data in said second format after completion of
13 said transcoding of data from said first format.

1 13. The method as recited in claim 12 wherein said
2 data in said first format is JPEG compressed data
3 and said data in said second format is MPEG
4 compressed data.

1 14. The method as recited in claim 12, wherein said
2 step of substituting is performed in a memory.

1 15. The method as recited in claim 12 comprising
2 the further step of transferring said data decoded
3 from each of said first and second formats to a
4 display.

1 16. The method as recited in claim 12 comprising
2 the further step of transferring said data decoded
3 from each of said first or second formats to a
4 printer.

1   17. The method as recited in claim 14 including the
2   further steps of
3   reading said decoded and substituted image data
4   from said memory, and
5   displaying or printing an image in accordance
6   with said decoded and substituted image data.

1   18. The method as recited in claim 12 wherein said
2   method is performed in a wireless telephone or video
3   game.

1   19. The method as recited in claim 1 wherein said
2   method is performed in a wireless telephone or video
3   game.

1   20. The method as recited in claim 1 wherein said
2   recompressed data includes motion vectors computed
3   from translation or panning coordinates.

1   21. The method as recited in claim 20 wherein said
2   motion vectors are restricted to JPEG block
3   boundaries.

1   22. The method as recited in claim 20 wherein said
2   recompressed data includes predictive coding.

1   23. The method as recited in claim 12 wherein said
2   recompressed data includes motion vectors computed
3   from translation or panning coordinates.

1   24. The method as recited in claim 23 wherein said
2   motion vectors are restricted to JPEG block
3   boundaries.

1   25.   The method as recited in claim 23 wherein said
2   recompressed data includes predictive coding.

1   26.   The method recited in claim 1 wherein said
2   compressed format compatible with said hardware
3   image decoder is not compatible from outside said
4   hardware image decoder.